

## WHAT IS CLAIMED IS:

1. A solar distillation loop apparatus, comprising:  
a first pipe section disposed on a ground surface, the first pipe section including a substantially straight portion and elevated portions on each end of the substantially straight  
5 portion, an impure water inflow coupling at one end of the straight portion and an impure water outflow coupling at the other end of the straight portion;  
solar powered fans disposed in each of the elevated portions of the first pipe section;  
a second pipe section disposed under the ground surface beneath the first pipe section; and  
two substantially vertical pipe sections that connect respective ends of the second pipe  
10 section to respective ends of the first pipe section.
2. The apparatus of claim 1 wherein the second pipe section is perforated.
3. The apparatus of claim 1 wherein the second pipe section includes a pure water outflow  
15 connection.
4. The apparatus of claim 1 wherein a color of the substantially straight portion of the first pipe section is black.
- 20 5. The apparatus of claim 1 wherein a cross-section of the substantially straight portion of the first pipe section is circular.
6. The apparatus of claim 1 wherein a cross-section of the substantially straight portion of the first pipe section is substantially elliptical, with a major axis of the cross-section generally  
25 parallel to the ground surface.
7. The apparatus of claim 1 wherein a material of the first pipe section, second pipe section and the two substantially vertical pipe sections comprises ABS plastic.
- 30 8. The apparatus of claim 1 wherein a material of the first pipe section, second pipe section and the two substantially vertical pipe sections comprises PVC.

9. The apparatus of claim 1 further comprising solar panels connected to each of the solar powered fans.

5        10. The apparatus of claim 1 wherein the second pipe section is disposed under the ground surface at a depth of about one to about three meters.

11. The apparatus of claim 2 wherein lower portions of the two substantially vertical pipe sections are perforated.

10

12. A method of producing pure water using the apparatus of claim 1, comprising:  
providing impure water to the first pipe section via the impure water inflow coupling and  
removing impure water from the first pipe section via the impure water outflow coupling;  
evaporating water from the impure water in the substantially straight portion of  
15 the first pipe section;  
using the solar powered fans, moving the evaporated water from the first pipe section to  
the second pipe section; and  
condensing the evaporated water in the second pipe section.

20        13. The method of claim 12 wherein the second pipe section is perforated, the method further comprising absorbing the condensed water in soil surrounding the second pipe section.

14. The method of claim 12 wherein the second pipe section includes a pure water outflow  
connection, the method further comprising removing the condensed water from the second pipe  
25 section via the pure water outflow connection.